


<div>California Department of Justice DIVISION OF LAW ENFORCEMENT Patrick N. Lunney, Director</div> <div></div>	<div>INFORMATION BULLETIN</div>
<div>Subject: Guidelines for Collection, Storage, and Submission of Samples for DNA Analysis from Unidentified Persons</div>	

To: All Chiefs of Police, Sheriffs, District Attorneys, California Highway Patrol,
Coroners, Medical Examiners, Forensic Pathologists, and Forensic Odontologists

On January 1, 2001, two new bills took effect regarding missing and unidentified persons. Senate Bill (SB) 1818 requires the California Department of Justice (DOJ) to develop a deoxyribonucleic acid (DNA) data bank for all cases involving the report of an unidentified person or a high-risk missing person. The DOJ Missing Persons DNA Program will actually develop two databases. One database will consist of DNA profiles from either 1) relatives of the missing person or from 2) personal effects from the missing person. The second database will consist of DNA profiles developed from the remains of unidentified deceased persons. These two databases will be compared to aid in the identification of human remains that could not be identified by traditional methods. It should be emphasized that DNA identification should only be used as a last resort; all other methods such as fingerprints, odontology, and anthropology should be attempted before submitting samples for DNA analysis.

SB 1736 requires any postmortem examination or autopsy upon an unidentified body or human remains to include specified procedures, including collection of tissue for future DNA testing. SB 1736 also provides time limits for law enforcement agencies to report the recovery of the unidentified remains to DOJ, and for coroners to submit dental x-rays and a final report of investigation (BCIA Form 4085, Unidentified Deceased Reporting Form) to DOJ. One of the requirements for the autopsy is to collect tissue, including a hair sample or body fluid samples, for future DNA testing. The primary purpose of this bulletin is to provide guidance for the collection, storage, and submission of samples for DNA testing.

Sample Handling

DNA testing is very sensitive – a tiny drop of blood or minute bone chip can contain enough DNA to obtain a result. Therefore, it is imperative that steps be taken to prevent contamination. Contamination could come from the person handling the remains, the environment, or the tools used during the examination.

1. Always wear gloves for personal protection as well as to prevent contamination of remains with the examiner's DNA.
2. Surgical blades should be new or thoroughly cleaned and sterilized between examinations. Carryover of DNA between sets of remains should be avoided. Sterilization can be accomplished by cleaning and autoclaving, or soaking implements in 10% bleach for 15 minutes, followed by rinsing with water.
3. Surfaces such as exam tables should be wiped down with 10% bleach between examinations, even if disposable sheets are used between the remains and the table.

Documentation

The Sample Request Form enclosed in the shipping container should be completely filled out. Additional requirements (as outlined in SB 1736) include dental x-rays and charts as well as photographs. Indicate on the sample request form whether these have been submitted to the Missing and Unidentified Persons Section of the DOJ. Identification by other means will be attempted before DNA analysis begins.

Storage

If remains are desiccated (mummified or skeletal), room temperature storage is acceptable. However, in order to minimize further degradation, all other remains and samples should be stored refrigerated.

Shipping

Desiccated remains can be shipped at room temperature. All other remains, blood, and tissue samples should be shipped on ice, scheduled for next day delivery. Pre-addressed shipping containers can be obtained from the DOJ by calling (510) 540-2434.

Sample Submission Prioritization

Since the condition and completeness of the remains can vary greatly depending on environmental conditions and human or animal activity, specified factors should be carefully evaluated. The state of decay of a human body can be generally categorized as one of the following:

1. Fresh (limited flesh decomposition, limited blistering/bloating, typically deceased from days to weeks)
2. Decomposed (significant amount of flesh decay, typically deceased from weeks to months)

3. Skeletal (mummified or no flesh remaining, typically deceased from months to years)

Samples exhibiting all of these states of decay can be analyzed by DNA testing, with the chance of success generally decreasing with age and increasing with the amount of sample tested. The following guidelines should be used to determine how much and what samples should be submitted.

Fresh

1. Ten (10) milliliters of blood, stored in a purple-cap (EDTA) tube. This tube should be kept refrigerated until submission. Blood should be shipped on ice for next day delivery to minimize degradation.
2. Approximately ten (10) grams of deep muscle tissue in a 50 milliliter conical tube or similar storage device. The storage and shipping recommendations are the same as above.

Decomposed

“Decomposed” can cover a wide range of states of decomposition. Depending on where the remains were found (in water, buried, or on the surface) and the environment to which the remains had been exposed (e.g., desert or snow), the rate of decomposition can vary. In these situations, blood, if present, will tend to be putrefied and not useful for DNA typing. Depending on the state of decomposition of the flesh, it may or not be useful for DNA testing. Dry or cold environments tend to preserve tissue better than warm or wet environments.

Depending on the state of decomposition, the following should be submitted:

1. Approximately ten (10) grams of deep muscle tissue in a 50 milliliter conical tube or similar storage device. The storage and shipping conditions are the same as above.
2. If mummified tissue is present, 1 – 10 grams should be collected, stored and submitted as above.
3. Bone (as prioritized below). Badly decomposed tissue should be removed from the bone before submission.

Skeletal or Mummified

If the body is mummified, do not remove the dried flesh.

1. Femur (intact). Dried skeletal remains can be stored and shipped at room temperature.
2. An unrestored (virgin) upper molar should also be submitted. If an unrestored upper molar is not available, then any other unrestored tooth should be submitted.

3. If a femur is not available, then a long bone (e.g. tibia, humerus or rib) should be submitted.
4. If none of the above are available, then the longest and most compact bone or bone fragment should be submitted.

If the remains do not fit into one of these categories or if there is any question as to collection, storage and submission of samples, please contact the Missing Persons DNA Program at (510) 540-2434.

Reminder:

DNA analysis in missing person cases is an investigative tool used in addition to dental x-rays, photographs, fingerprints, and other investigative methods. Law enforcement agencies should continue submitting dental x-rays and a photograph of the missing person to the DOJ's Missing and Unidentified Persons Section in accordance with the requirements set forth in Section 14206 of the Penal Code. The dental characteristics of your missing person are entered into a computerized database and continually compared to the dental records of unidentified persons reported to the DOJ. All missing persons, whose photographs are submitted to DOJ, with the signed waiver if juvenile, are featured on the Attorney General's Internet Web Site at <http://ag.ca.gov>. The missing person's photograph may be featured on our monthly or special edition posters. Over 18,000 posters are distributed monthly throughout California to police, sheriff, district attorney and highway patrol offices; roadside rest stops; state buildings; convenience stores; and other state clearinghouses and airports throughout the country. The DOJ also publishes a quarterly bulletin containing photographs of missing persons, which is distributed to law enforcement agencies and public and private primary and secondary schools in California.

If you have any questions regarding the submission of dental x-rays and/or photographs, please contact the DOJ Missing and Unidentified Persons Section at (916) 227-3290.

Sincerely,

PATRICK N. LUNNEY, Director
Division of Law Enforcement

For BILL LOCKYER
Attorney General